

Notice of Allowability

Application No.

10/766,035

Examiner

Jeffrey D. Lane

Applicant(s)

ANDO ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/17/06.
2. ☒ The allowed claim(s) is/are 1 and 3-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>5/25/06</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Fred Gibb on 5/25/06.

In claim 1, at line 14; "...luminous wavelength in said active laser..." has been changed to "...luminous wavelength in said active **layer**;..."

In claim 6, at line 12; "...luminous wavelength in said active laser..." has been changed to "...luminous wavelength in said active **layer**;..."

In claim 13, at line 12; "...luminous wavelength in said active laser..." has been changed to "...luminous wavelength in said active **layer**;..."

In claim 3, at line 3; "...evaporating at least a portion of said semiconductor layer which is placed right under said ..." has been changed to "...evaporating at least a portion of **said plural semiconductor layers** which is placed right under said ..."

In claim 5, at line 7; "...crystal growth substrate and said semiconductor layer existing at least right beneath said laser..." has been changed to "...crystal growth substrate and **said plural semiconductor layers** existing at least right beneath said laser..."

In claim 7, at line 5; "...crystal growth substrate and said semiconductor layer existing at least right beneath said laser..." has been changed to "...crystal growth substrate and **said plural semiconductor layers** existing at least right beneath said laser..."

In claim 5, at line 7; "...crystal growth substrate and said semiconductor layer existing at least right beneath said laser..." has been changed to "...crystal growth substrate and **said plural semiconductor layers** existing at least right beneath said laser..."

In claim 14, at line 5; "...crystal growth substrate and said semiconductor layer existing at least right beneath said laser..." has been changed to "...crystal growth substrate and **said plural semiconductor layers** existing at least right beneath said laser..."

2. The following is an examiner's statement of reasons for allowance:

As for claims 1, 3-5, 8-11, and 15-20 there is not found with in the references cited an edge-emitting type semiconductor laser where the of the n-type contact layer has a thinner portion formed of at least a part right under said laser cavity and a thicker portion except for said thinner portion, and a thickness of said thinner portion is thinner than a value less than Λ (as Λ is defined in claims 1 and 5) where there is a concave part formed at least at a part right under the laser cavity and where the n-layer has a thicker and a thinner portion where the thinner portion is located under the laser cavity.

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As for claims 6 and 7, there is not found with in the references cited an edge-emitting type semiconductor laser where the thickness of the of the n-type contact layer, formed on or above the substrate, is less than Λ (as Λ is defined in claims 1 and 5) and with an n-type clad layer wherein a dielectric film or a semiconductor film having smaller refractive index than that of said n-type clad layer is formed at the bottom of said n-type contact layer exposed in said concave part.

As for claims 12-14 there is not found with in the references cited an edge-emitting type semiconductor laser where the thickness of the of the n-type contact layer, formed on or above the substrate, is less than Λ (as Λ is defined in claims 1 and 5) and where the top is etched so that the upper surface of n-type contact layer is exposed and a negative electrode is formed on the exposed surface, and where a p-type or undoped Group III nitride is formed between the n-type contact layer and the substrate.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey D. Lane whose telephone number is (571) 272-1676. The examiner can normally be reached on Monday thru Friday 8:30 to 5:00.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jeffrey D Lane
Examiner
Art Unit 2828

JDL


MINSUN OH HARVEY
PRIMARY EXAMINER